DEPARTM

National Highway Traffic Safety Administration

[Docket No. NHTSA-2022- 0063]

Agency Information Collection Activities; Submission to the Office of Management and Budget for Review and Approval; Request for Comment; Drivers' Knowledge/Correct Use of New Technology Features in Passenger Vehicles

AGENCY: National Highway Traffic Safety Administration (NHTSA), Department of Transportation (DOT).

ACTION: Notice and request for comments on a request for approval of a new information collection.

SUMMARY: In compliance with the Paperwork Reduction Act of 1995 (PRA), this notice announces that the Information Collection Request (ICR) abstracted below will be submitted to the Office of Management and Budget (OMB) for review and approval. The ICR describes the nature of the information collection and its expected burden. This ICR is for a new collection of information for which NHTSA intends to seek OMB approval for a one-time voluntary experiment on drivers' understanding of and behaviors using vehicles equipped with adaptive cruise control and lane centering technologies. A **Federal Register** notice with a 60-day comment period soliciting comments on the following information collection was published on July 20, 2022 (86 FR 43374-76). NHTSA received comments from two organizations, which we address below.

DATES: Comments must be submitted on or before [INSERT DATE 30 DAYS AFTER THE DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: Written comments and recommendations for the proposed information collection, including suggestions for reducing burden, should be submitted to the Office of Management and Budget at www.reginfo.gov/public/do/PRAMain. To find this particular

information collection, select "Currently under Review – Open for Public Comment" or use the search function.

FOR FURTHER INFORMATION CONTACT: For additional information or access to background documents, contact Kathy Sifrit, PhD, Office of Behavioral Safety Research (NPD-320), (202) 366-9982, National Highway Traffic Safety Administration, W46–472, U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Washington, DC 20590.

SUPPLEMENTARY INFORMATION: Under the PRA (44 U.S.C. 3501 *et seq.*), a Federal agency must receive approval from the Office of Management and Budget (OMB) before it collects certain information from the public and a person is not required to respond to a collection of information by a Federal agency unless the collection displays a valid OMB control number. In compliance with these requirements, this notice announces that the following information collection request will be submitted OMB.

Title: Drivers' Knowledge/Correct Use of New Technology Features in Passenger Vehicles.

OMB Control Number: New.

Form Numbers: NHTSA Forms 1627, 1628, 1629, and 1630.

Type of Request: Approval of a new information collection.

Type of Review Requested: Regular.

Length of Approval Requested: Three years from date of approval.

Summary of the Collection of Information: The National Highway Traffic Safety Administration (NHTSA) of the U.S. Department of Transportation is seeking approval for a one-time voluntary information collection from 180 of licensed drivers of various ages for a research study of drivers' interactions with Level 2 (L2) systems that can provide longitudinal (adaptive cruise control) and lateral (lane centering) control of the vehicle. NHTSA expects to provide screening questionnaires to 1,000 potential participants to determine their eligibility for the study. Recruiting participants for the study has an estimated burden of 250 hours for the screening questions. An estimated 200 potential participants will be eligible and interested. This group will

receive the consent form with an estimated burden of 150 hours for reviewing and completing the form. An estimated 180 participants are expected to consent and enroll in the study. Participants' naturalistic driving data will be collected using a data acquisition system (DAS) installed in study-provided vehicles. The DAS includes video cameras and sensors; data also will be collected from the vehicle. Naturalistic driving data will be collected for two weeks with the L2 systems in this study unavailable to the drivers to provide a baseline measure of participants' driving habits, followed by four weeks driving with the systems available to measure changes in driving patterns as well as safety-related behaviors such as distracted driving and seat belt use. While the naturalistic data collection does not create a burden to participants, study tasks above and beyond the driving they would normally complete include a 15-minute enrollment procedure, a one-hour vehicle familiarization briefing, a two-hour training about the L2 systems, two two-hour planned drives (one at the beginning and one at the end of the study), five 30-minute planned drives (during the study), a five-minute usability questionnaire, and a 30-minute final debriefing. As such, the naturalistic study has an expected burden of 1,860 hours. In addition, half the participants will complete a 15-minute questionnaire that measures knowledge and opinions before exposure to the L2 systems and the other half will complete after exposure with an estimated burden of 45 hours. The total expected burden for this collection is 2,305 hours. NHTSA will use the information to produce a technical report containing summary statistics and tables. No identifying information or individual responses will be reported. The technical report will be made available to a variety of audiences interested in improving highway safety through the agency web site and the National Transportation Library. This project involves approval by an institutional review board, which the contractor will obtain before contacting potential participants. This collection will inform the development of behavioral safety countermeasures, particularly in the areas of communications and training, intended to improve drivers' ability to use L2 systems safely.

Description of the Need for the Information and Proposed Use of the Information: NHTSA's mission is to save lives, prevent injuries, and reduce traffic-related health care and other economic costs. To further this mission, NHTSA conducts research as a foundation for the development of motor vehicle standards and traffic safety programs. Older adults comprise an increasing proportion of the driving population. Driving supports older adults' access to the goods and services they need and enhances their ability to take part in community and family activities that support quality of life. Vehicles equipped with L2 systems can reduce the cognitive load imposed by driving, which may make them appealing to older drivers who may find driving cognitively taxing, and to younger adults who may find the systems useful when navigating through heavy traffic or during long trips. However, drivers must understand what they can and cannot expect from L2 systems to use them safely and effectively. An increasing proportion of passenger vehicles are equipped with L2 systems which, under appropriate conditions, keep the vehicle centered in the lane and manage the vehicle's acceleration/braking to stay an appropriate distance from the vehicle ahead while maintaining driving speed. Research regarding driver understanding of L2 systems has been mixed. NHTSA is concerned that drivers may over-rely on L2 systems, and engage risky behaviors such as driving while distracted, drowsy, or under the influence of alcohol or drugs. NHTSA desires to learn more about how older and young adult drivers use these systems to better target behavioral countermeasures such as communications and training to ensure that drivers use the systems safely.

60-Day Notice: A **Federal Register** notice with a 60-day comment period soliciting public comments on the following information collection was published on July 20, 2022. Two organizations submitted comments: The Alliance for Automotive Innovation (the Alliance) and the Texas Department of Transportation (TxDOT). The Alliance was generally supportive of the agency's efforts to evaluate how Level 2 (L2) systems that can provide longitudinal and lateral control of the vehicle are being used by consumers in the field and noted the importance of research in ensuring a data-driven approach to policy. They recommended some changes in

project design to enhance the quality, utility, and clarity of the information to be collected. TxDOT also expressed support for the project and noted that the findings will help State departments of transportation to communicate and educate the public on how to safely use L2 systems. They also asked some questions about the study design. We appreciate the comments from Alliance and TxDOT and thank them for thoughtfully considering the proposed collection.

The Alliance provided comments about several aspects of the study design. The first topic involved how the study familiarizes participants with the L2 systems. We agree that is important to ensure that participants understand the L2 systems and that the familiarization should include information from the manufacturer. However, the Alliance indicated that the amount of time planned for familiarizing participants with the study vehicles and the two technologies is far more than is provided to car buyers under real world conditions. While we recognize that this protocol provides substantially more information and training than people typically receive or seek when buying a new vehicle, the study does not aim to replicate the level of familiarization car buyers receive from a dealership. The amount of time in this study is intended to familiarize participants with the L2 systems to minimize drivers' errors due to misunderstanding of the systems' capabilities and limitations that could arise if they use the systems without understanding and operating them appropriately. While the data collection plan (and the burden calculation) includes up to 120 minutes to provide adequate time to familiarize each participant with the vehicle, including the L2 systems, we expect the average time will be closer to 90 minutes. During this time participants will watch a video about the L2 systems, and a researcher will go over all the L2-related materials in the owner's manual, including warnings, and explain when the system will not work. A researcher will then sit in the vehicle with the participant and review the systems including the location of buttons and warnings. A researcher will then demonstrate the systems on the roadway including examples and discussions of situations when the systems may not work, and finally the participant will practice with the systems on roadways until the participant and the researcher are confident about basic system

operation. The researchers are not training participants to any performance or proficiency level beyond basic understanding and operation to minimize potential errors in data collection. The Alliance also noted the importance of correctly classifying risky behaviors. The protocol described above helps minimize misclassification of driver actions that stem from misunderstanding of system capabilities as opposed to intentional risky behavior. The Alliance also recommended that NHTSA consider examining various levels of training, which would likely involve varying the length of the familiarization and the burden per participant. We agree that a study of the effects of various levels of training would be useful in developing educational materials for drivers. However, we also believe such a design would require a much larger study with significantly more participants than this proposed study and should build upon this proposed collection. NHTSA will make decisions about future research based on the findings of this study and other ongoing research.

The second topic focused on the choice of technologies. The Alliance noted that some L2 systems are limited to adaptive cruise control and lane keeping assist while others monitor driver state and support hands-free driving. They recommended that NHTSA include a variety of makes and models in the study to create more variation in the types of technologies. Since the behavioral safety research questions in this proposed study do not involve system comparisons or aim to examine system design, NHTSA plans to retain the design decision to use one vehicle to control for differences in technologies. This study design intentionally recruits participants who vary in age and sex while it aims to control for the type of system, and it is different from a design where one would include various makes and models with different designs and try to control for differences among participants. Varying both participant groups and systems would require a much larger study to have sufficient statistical power. This project's focus is drivers' behaviors while using the system. While we acknowledge the growing variety of L2 systems, we selected adaptive cruise control and lane centering for this study because they are widely available to consumers and are designed to provide similar types of driver support. We

acknowledge, however, that restricting the study to a particular model requires careful selection. The goal is to select a "typical" or "common" vehicle and system and to avoid highly unusual or novel interfaces. With this goal in mind, we will select a study vehicle that provides adaptive cruise control and lane centering and is moderately priced. As such, we believe that the basic principles underlying these two systems are sufficiently similar across platforms that lessons learned about behaviors under one would generalize to others.

Another topic involved how the study classifies behaviors as "safety related" in the context of systems that allow hands-free operation under some conditions as well as strategies for re-engaging the driver. The L2 system for this study will not support hands-free driving, and participants will be advised to keep their hands on the wheel and to continually monitor traffic. Instances of a participant's eyes off road longer than 2 seconds or hands off the wheel will be coded as safety related (risky) behaviors.[1] The Alliance further suggested that the study should evaluate differences in strategies for re-engaging drivers based on the number of warnings and warning types as well as other factors that may impact drivers' responses to warnings or potential misuses. Addressing these research questions would require variation in system design and inclusion of vehicles that support some hands-free operation. As discussed above, these questions are beyond the scope of the project and would require a much larger study.

Another topic raised by the Alliance expressed concern about varying levels of driving experience, especially among the youngest age group, and suggested that we gather information on prior driving histories and experiences with systems in their personal vehicles. We agree that participants with varying levels of driving experience and experience with L2 systems could complicate the study and analysis. The proposed study design addresses this issue through the questions in the Screening Questionnaire (Form 1627). To qualify for the study, a person must have a valid driver's license and have been fully licensed for at least two years. The focus of this

[1] See "Visual-Manual NHTSA Driver Distraction Guidelines for Portable and Aftermarket Devices," 81 Fed. Reg. 87656 (December 5, 2016). https://www.govinfo.gov/content/pkg/FR-2016-12-05/pdf/2016-29051.pdf

study is on drivers with little or no experience with L2 systems, so the Screening Questionnaire helps remove participants with experience driving a vehicle that comes with an L2 system. Further, participants cannot have used any adaptive cruise control, lane keeping assist, or lane centering systems five or more times. These screening requirements should ensure that participants have adequate driving experience and similar levels of L2 experience.

The Alliance's final topic involved the knowledge and opinion questionnaire (Form 1629). The Alliance recommended increasing the burden by administering the questionnaire to all participants before and after exposure to provide insights to inform communications with the public. We believe administering the questionnaire before and after L2 exposure to all participants risks carryover effects as completing the pre-exposure questionnaire would make it more likely for participants to note and remember the "right" responses during familiarization. This effect could undermine the validity of the post-exposure responses as a measure of what drivers learned through the course of the study.

TxDOT offered two comments regarding the design of the proposed study. The first comment noted that the proposed study involves three age groups (18 to 25, 35 to 55, and 70 and older), and they asked why it excluded drivers between the ages of 26 and 34 and 56 to 69. Recruiting in specific age groups and excluding others is a common method for comparing the effects of age because it allows substantive comparisons across age groups without potentially comparing participants whose age is only different by one year. Further, given that age is an important explanatory variable in this study, these age groups provide substantive differences across groups and could add to the statistical power to find an effect of age. Finally, TxDOT noted that the proposed study design of four weeks of observation may be too little time to measure changes in driving patterns as well as safety-related behaviors and that we should consider increasing the burden to collect more valid data over a longer period. While we agree that this proposed study is a relatively limited amount of time to collect observation data, this project focuses on drivers' behaviors during their first weeks using the systems as they become

familiar with them. We believe the proposed length of time is sufficient given the findings from this study will inform development of behavioral safety countermeasures, particularly in the areas of communications and training, to improve drivers' ability to use L2 systems safely. Additionally, drivers are most likely to seek such information when they first begin using, or even before using, L2 systems.

Affected Public: Study volunteers in the Blacksburg, VA, area. The study plans to recruit participants with little to no experience driving a vehicle with L2 systems. Of the 180 selected drivers, 60 will be age 70 and older, 60 will be between the ages of 35 and 55, and 60 will be between ages 18 and 25. Equal numbers of males and females will be recruited within each age group.

Estimated Number of Respondents: The study anticipates screening 1,000 potential participants to obtain 180 drivers who meet study inclusion criteria. NHTSA expects to provide screening questionnaires to 1,000 potential participants to determine their eligibility for the study. Based upon previous research experience in the study area, an estimated 200 potential participants (20% of those who respond to screener questions) will be eligible and interested. An estimated 180 participants (90% of those who receive the consent form) are expected to consent and enroll in the study.

Frequency: This study is a one-time information collection, and there will be no recurrence.

Estimated Total Annual Burden Hours: 2,305.

The annual estimated burden is 2,305 hours. This estimate includes 250 hours for 1,000 potential participants to complete the initial screening and 150 hours for 200 potential participants to review and complete the consent form. The burden estimate also includes 1,860 hours for the 180 consented and enrolled participants to complete all study tasks above and beyond the driving they would normally complete during the naturalistic driving observation periods. The study tasks include a 15-minute process for study enrollment, a 1-hour vehicle familiarization briefing, a 2-hour training about the L2 systems, two 2-hour planned drives (one at the beginning and one

at the end of the study), five 30-minute planned drivers (during the study), a five-minute usability questionnaire, and a 30-minute final debriefing. In addition, half the participants will complete a 15-minute questionnaire that measures knowledge and opinions before exposure to L2 systems and the other half will complete the questionnaire after exposure with an estimated burden of 45 hours. The total burden is the sum of the burden across screening, consenting, and completing the study for a total estimate of 2,305 hours. The details are presented in Table 1 below.

Table 1: Estimated Burden Hours by Form

Form	Description	Participants	Estimated minutes per participant	Total estimated burden hours per form
Form 1627	Screening Questionnaire	1000	15	250
Form 1628	Informed Consent Briefing	200	45	150
Form 1629	Knowledge & Opinion Questionnaire	180	15	45
Form 1630	Naturalistic Study	180	620	1,860
	Enrollment		*15*	
	Vehicle Familiarization		*60*	
	Baseline Planned Drive		*120*	
	L2 System Familiarization		*120*	
	Five Weekly Planned Drives		*150*	
	Post-Study Planned Drive		*120*	
	Usability Questionnaire		*5*	
	Debriefing		*30*	
Total				2,305

Estimated Total Annual Burden Cost: NHTSA estimates the only cost burdens to respondents beyond the time spent on data collection activities are costs related to drives above and beyond their normal driving required by the study, which impose additional fuel costs. These cost burdens are expected to be offset by the monetary compensation that will be provided to all research participants. Participants will receive $100 after completion of the first session, $150 after completion of the baseline naturalistic driving, and $200 upon completion of the study. This compensation offsets both the participants time as well as the additional fuel costs, and the amount is in line with past similar efforts given the activities it requires of participants.

PUBLIC COMMENTS INVITED*:* You are asked to comment on any aspects of this information collection, including (a) whether the proposed collection of information is necessary for the proper performance of the functions of the agency, including whether the information will have practical utility; (b) the accuracy of the agency's estimate of the burden of the proposed collection of information, including the validity of the methodology and assumptions used; (c) ways to enhance the quality, utility and clarity of the information to be collected; and (d) ways to minimize the burden of the collection of information on respondents, including the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

AUTHORITY: The Paperwork Reduction Act of 1995; 44 U.S.C. Chapter 35, as amended; 49 CFR 1.49; and DOT Order 1351.29.

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Nanda Narayanan Srinivasan,
Associate Administrator, Research and Program Development.
[Billing Code: 4910-59-P]

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